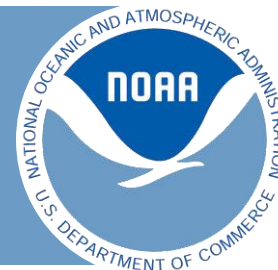




UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION

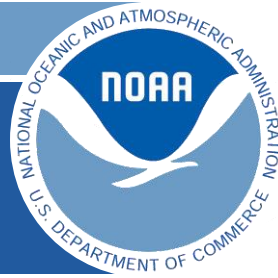


CPC Operational Outlooks Relevant to California Drought Awareness

Jon Gottschalck

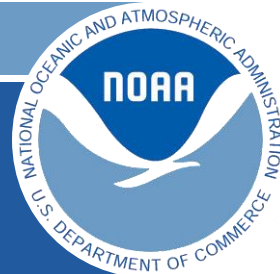
Acting Chief, Operational Prediction Branch,
Climate Prediction Center

California Drought Forum
Sacramento, CA
May 15-16, 2013



Outline

- CPC Mission
- Summary of CPC operational outlook services
 - ➔ Extended range outlooks
 - ➔ Monthly and Seasonal Outlooks
- Looking ahead over the next 8 months



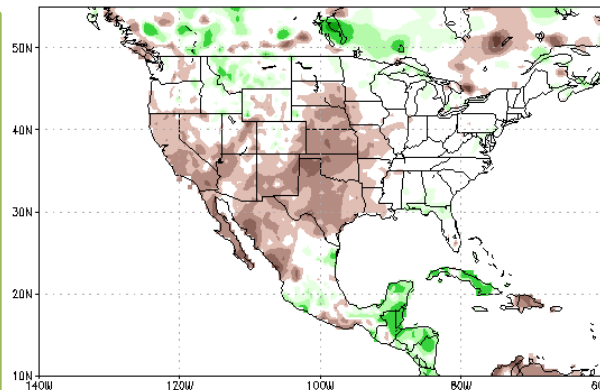
CPC Mission

We deliver climate prediction, monitoring, and diagnostic products for timescales from weeks to years to the Nation and the global community for the protection of life and property and the enhancement of the economy.

Operational Requirements:

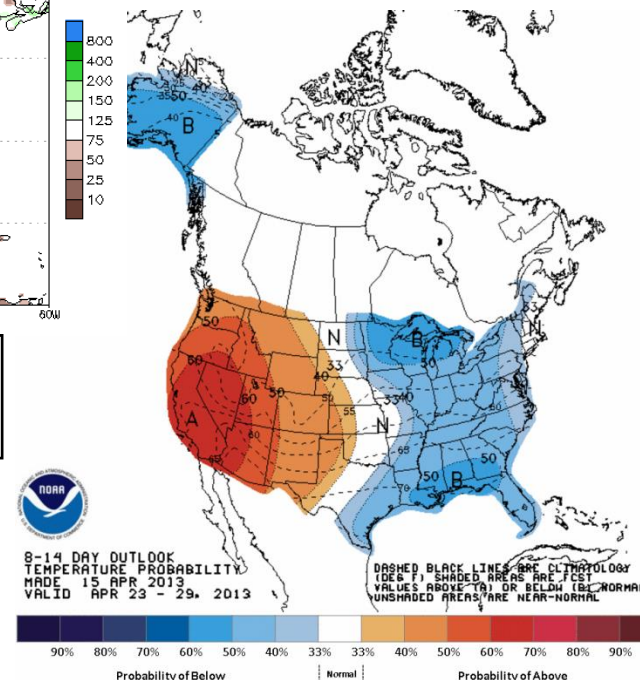
- Deliver National monitoring and outlook products: Temperature, precipitation, drought, hurricanes, ...
- Span weeks, months, seasons out to about 1 year
- Embrace collaborative forecasting with other NCEP Service Centers, NOAA line offices, other agencies
- Ensure real-time, on-time, all the time

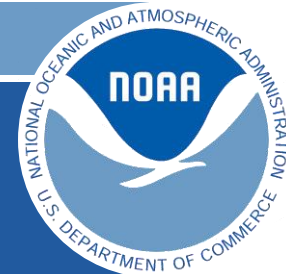
180-day Accumulated Prop % of Normal 10NOV2013-08MAY2014



**% of Average Precipitation
last 180 days**

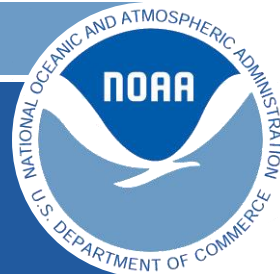
Week-2 Temperature Outlook





CPC Subseasonal to Seasonal Outlooks

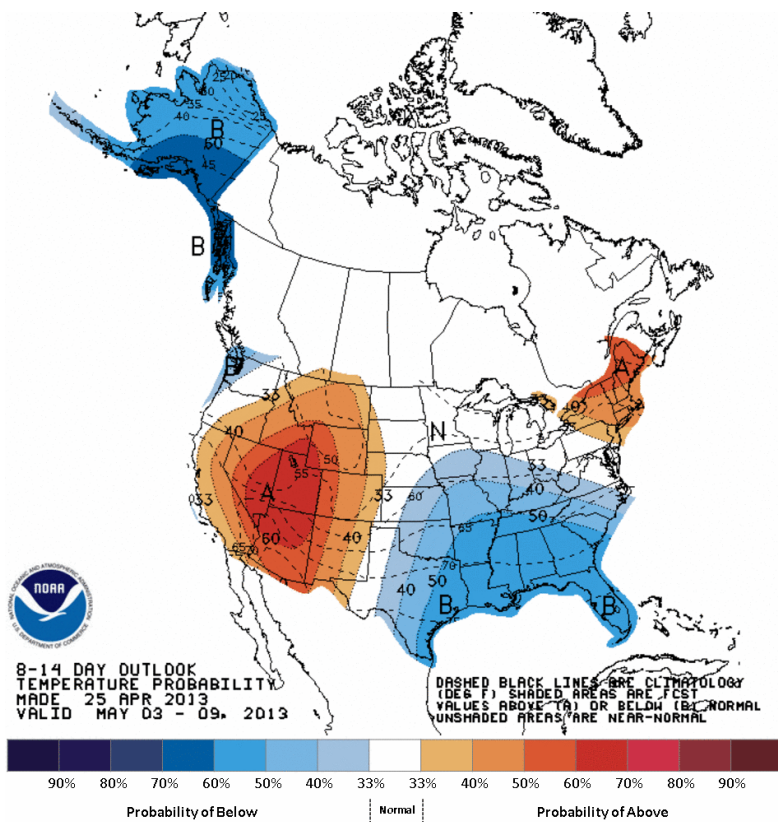
Outlook	Variables	Type	Frequency	Release Date and Time	
Days 8-14	Temp/Precip	Probabilistic	Daily	Daily	3 PM ET
Monthly	Temp/Precip	Probabilistic	2x per month	3 rd Thurs of month / Last day of month	8:30 AM, 3 PM ET
Seasonal	Temp/Precip	Probabilistic	1x per month	3 rd Thursday of month	8:30 AM ET
Monthly drought	Drought tendency	Categorical	1x per month	Last day of month	3 PM ET
Seasonal drought	Drought tendency	Categorical	1x per month	3 rd Thursday of month	8:30 AM ET
U.S. Hazards	Temps, precip, winds, etc.	Categorical	Daily	Monday - Friday	3 PM ET
Global Tropics	Precip, TCs, etc.	Categorical	Weekly	Tuesday	12 PM ET



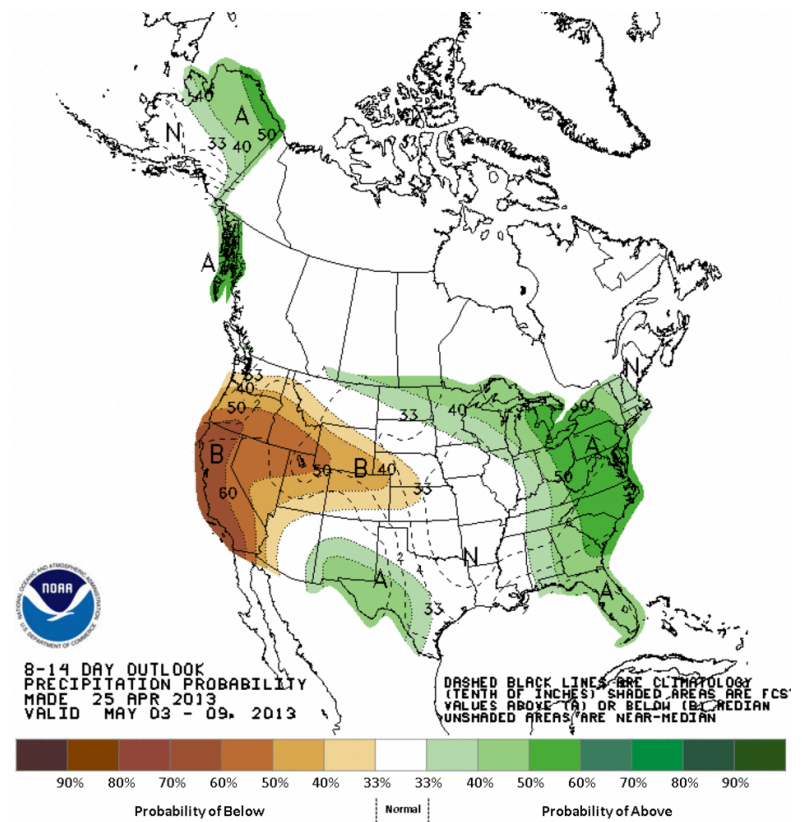
Extended Range Prediction Products

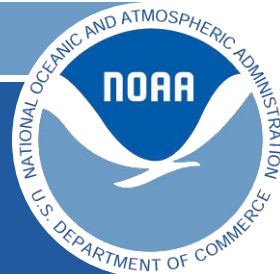
- Forecast for 7-day average temperature and total precipitation
- Probabilities for 1 of 3 categories (below-, near- or above-average)

Temperature



Precipitation





Extended Range Prediction Products

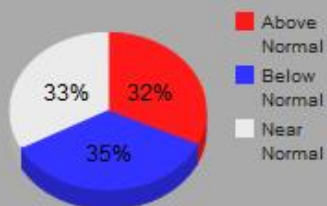
INTERACTIVE DISPLAY - UPDATED: 08 MAY 2014

[New York 8, Hoffmeister, NY 13353, USA](#)

Three Category Temperature Outlook

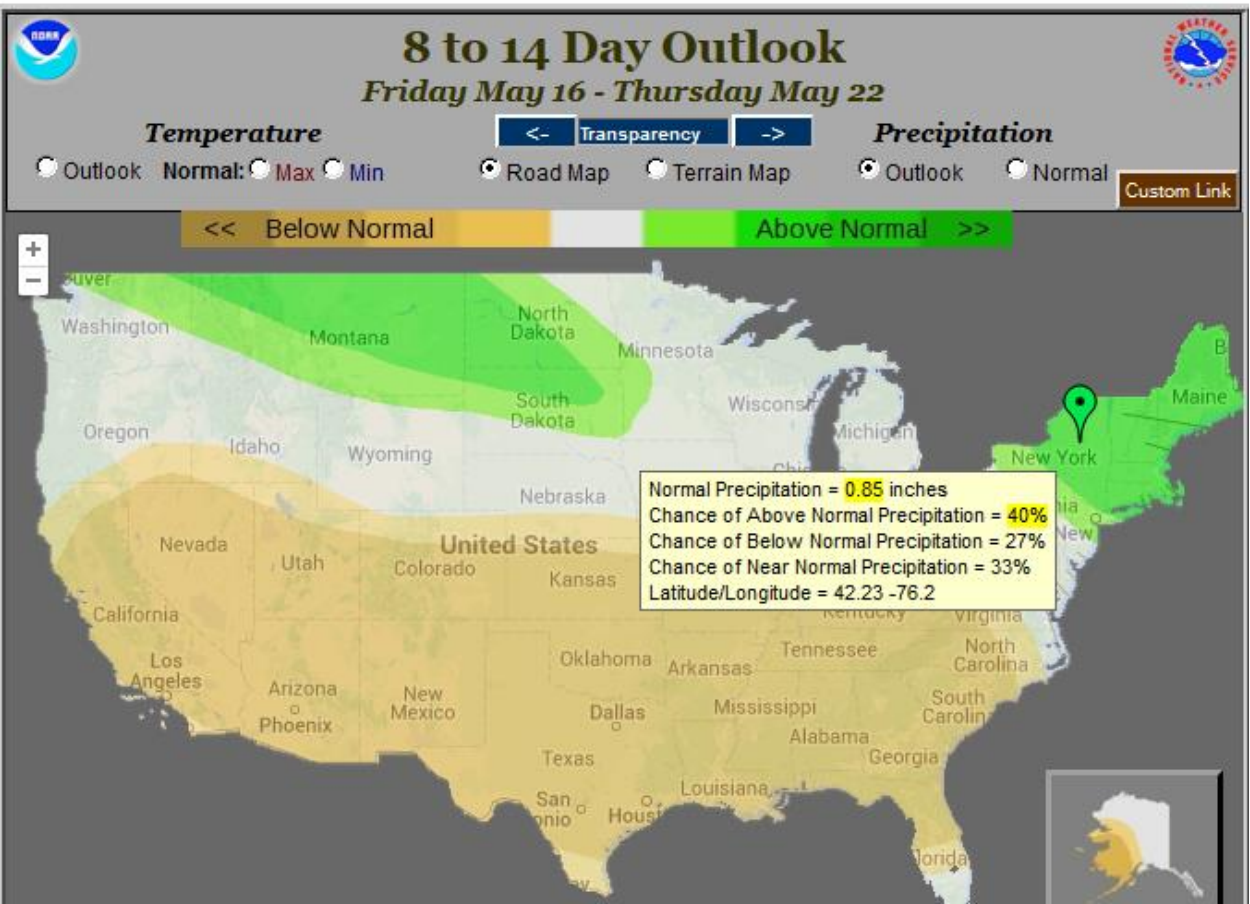
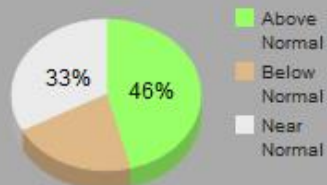
Normal Maximum Temperature: **62**

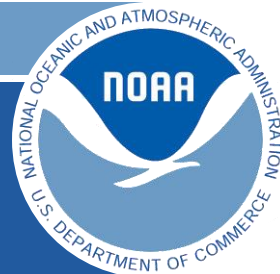
Normal Minimum Temperature: **44**



Three Category Precipitation Outlook

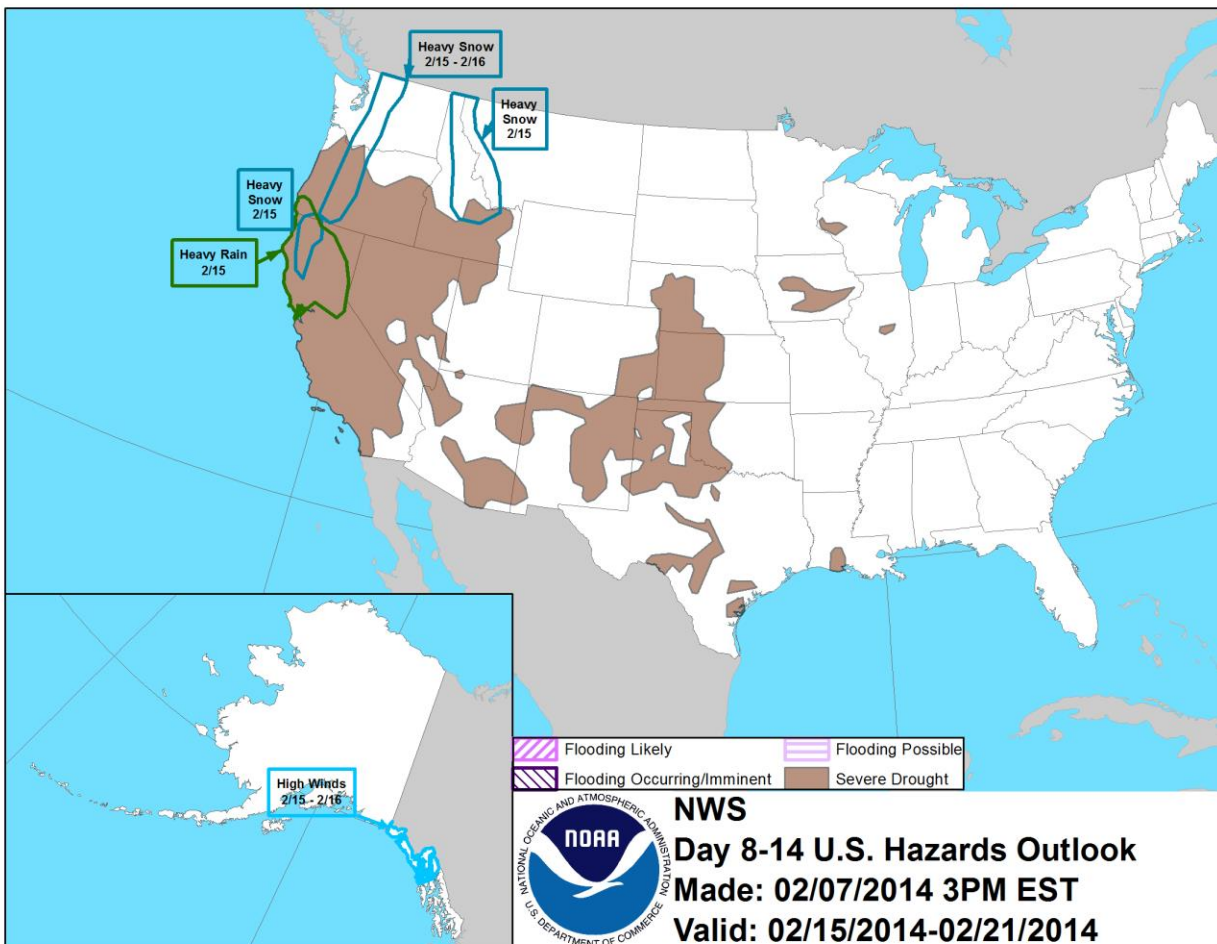
Normal Precipitation: **1.12**

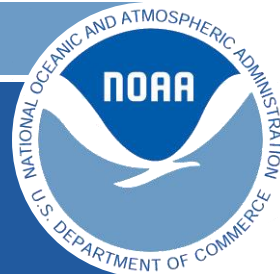




Extended Range Prediction Products

- U.S. Hazards Outlook
- Released daily (M-F)
- Days 3-14, example is for the Days 8-14
- Variety of weather elements including heavy rainfall, heavy snowfall, much above-normal temperatures, etc.



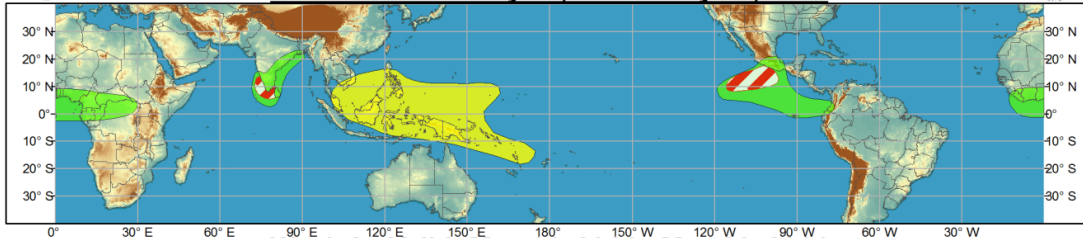


Extended Range Prediction Products

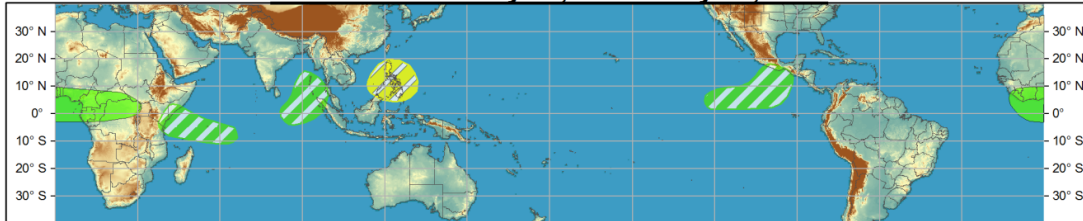


Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: May 07, 2014 - May 13, 2014



Week 2 - Valid: May 14, 2014 - May 20, 2014



Confidence
High Moderate

Tropical Cyclone Formation



Development of a tropical cyclone that eventually reaches tropical storm/cyclone strength.

Above-average rainfall



Weekly total rainfall in the upper third of the historical range.

Below-average rainfall



Weekly total rainfall in the lower third of the historical range.

Above-normal temperatures



7-day mean temperatures in the upper third of the historical range.

Below-normal temperatures



7-day mean temperatures in the lower third of the historical range.

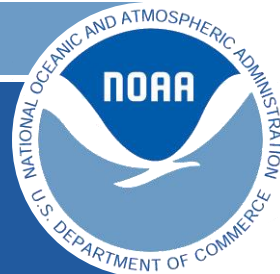
Produced: 05/06/2014

Forecaster: Pugh

Product is updated once per week. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.



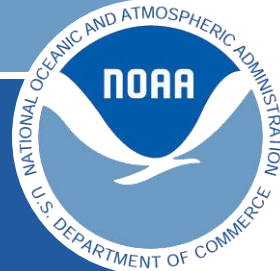
- Global Tropics Hazards and Benefits Outlook
- Released weekly on Tuesday (live briefing also)
- Tropical rainfall patterns can impact higher latitudes
- Bursts and lulls in SW monsoon, TC's, cold season moisture plumes (i.e. atmospheric rivers, etc.)



Monthly and Seasonal Outlooks

Factors influencing monthly and seasonal outlooks:

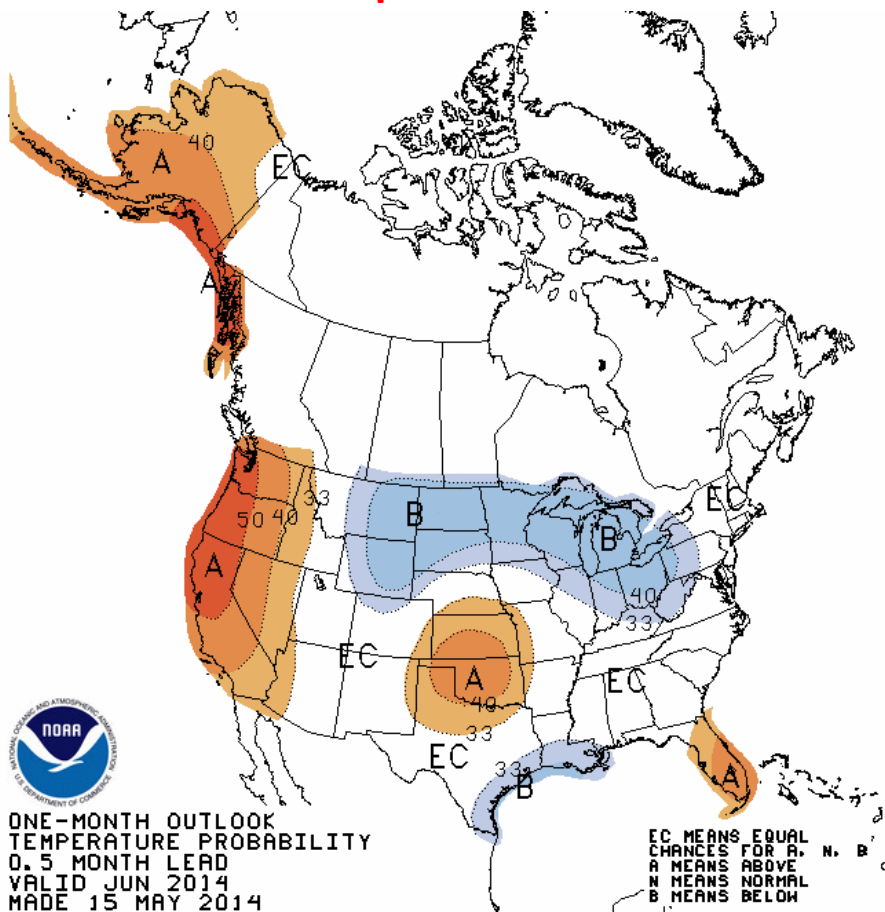
- Understanding of typical impacts associated with short-term climate variability (El Nino-Southern Oscillation, Madden-Julian Oscillation)
- Slowly evolving boundary conditions (soil moisture, snow cover, local ocean temperatures)
- Long-term trends
- Statistical and dynamical forecast guidance targets the sources of predictability listed above as well as other variable relationships



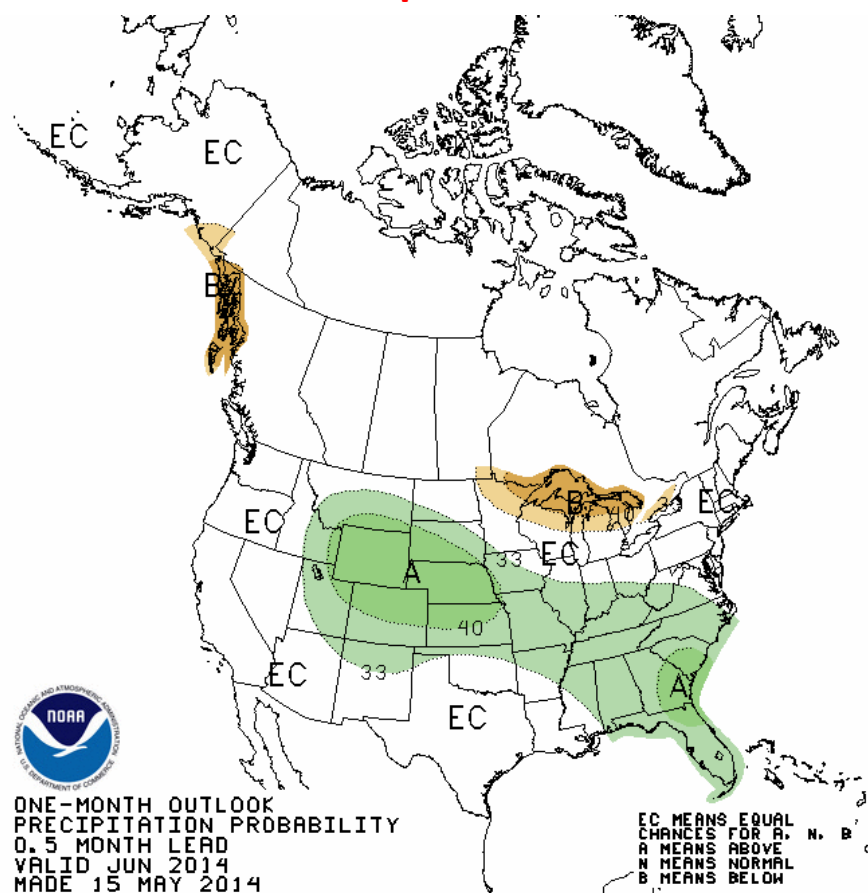
June Monthly Outlook

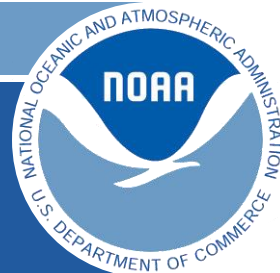
- Forecast for 30-day average temperature or total precipitation
- Probabilities for 1 of 3 categories (below-, near- or above-average)

Temperature



Precipitation

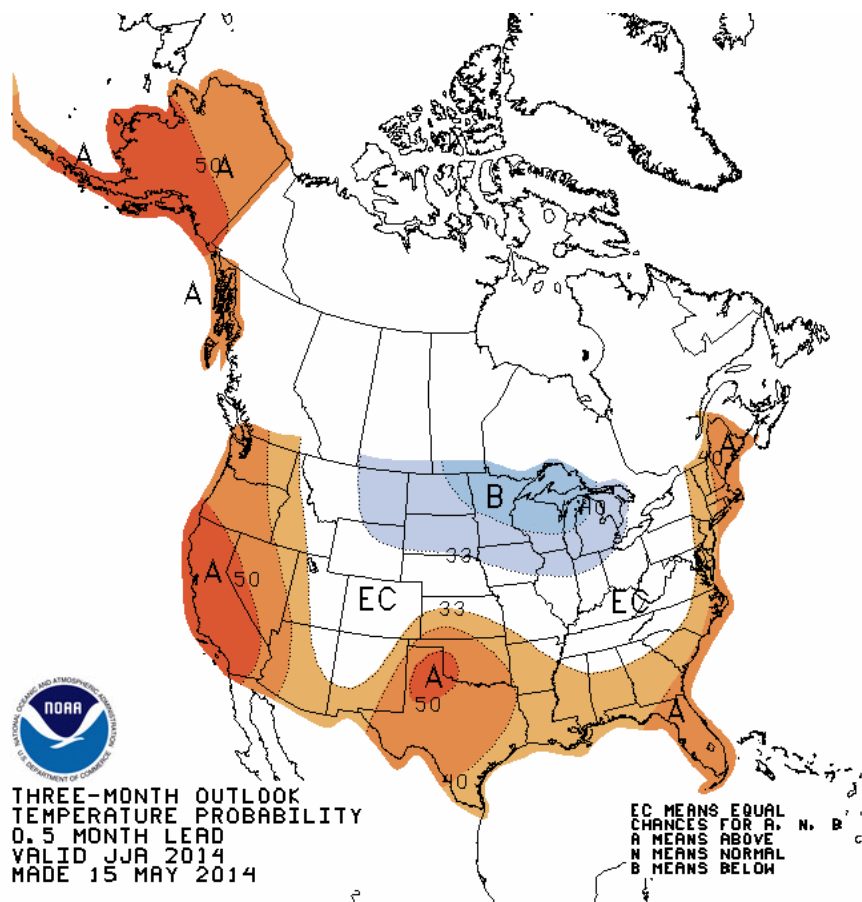




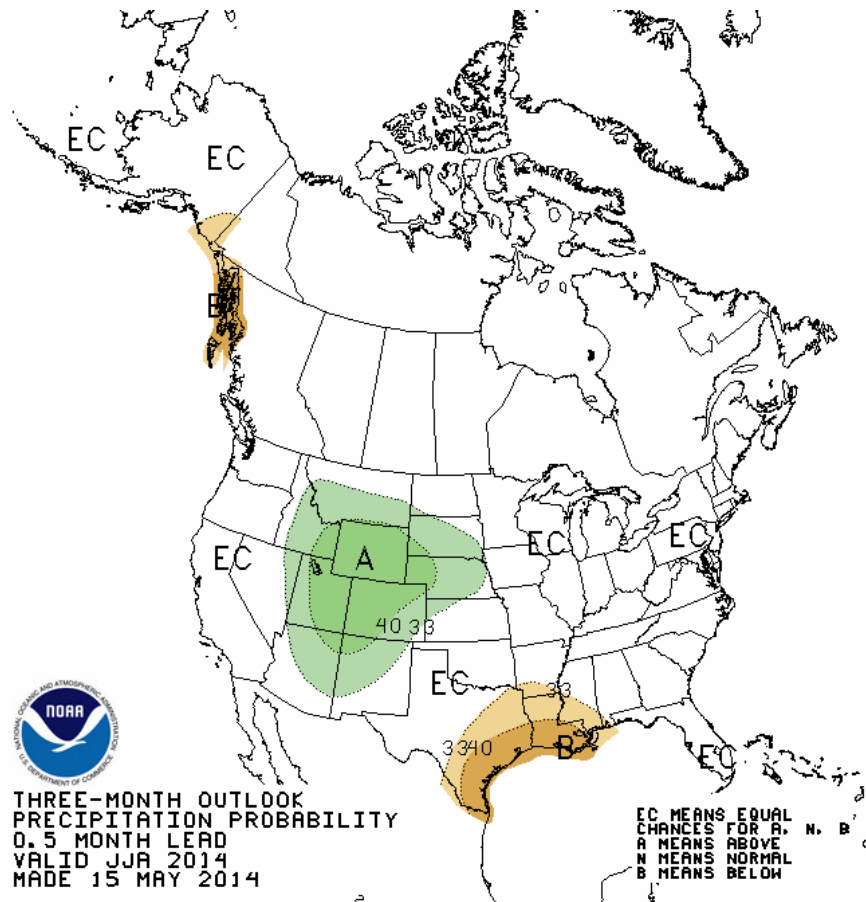
Jun-Jul-Aug (JJA) Outlook

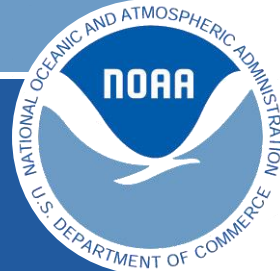
- Forecast for 90-day average temperature or total precipitation
- Probabilities for 1 of 3 categories (below-, near- or above-average)

Temperature

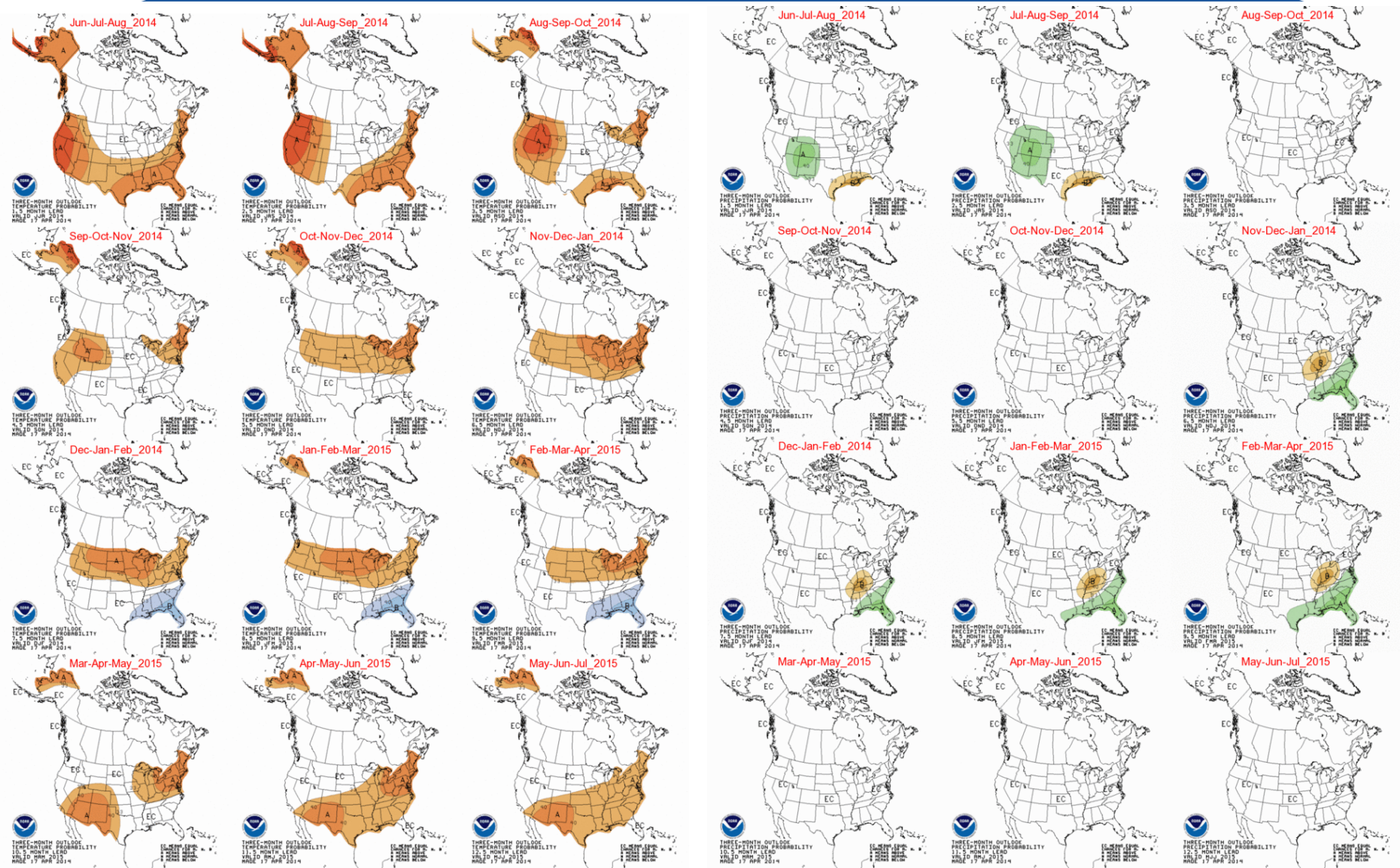


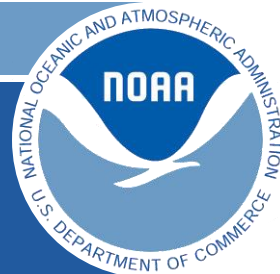
Precipitation





Suite of Seasonal Outlook Maps

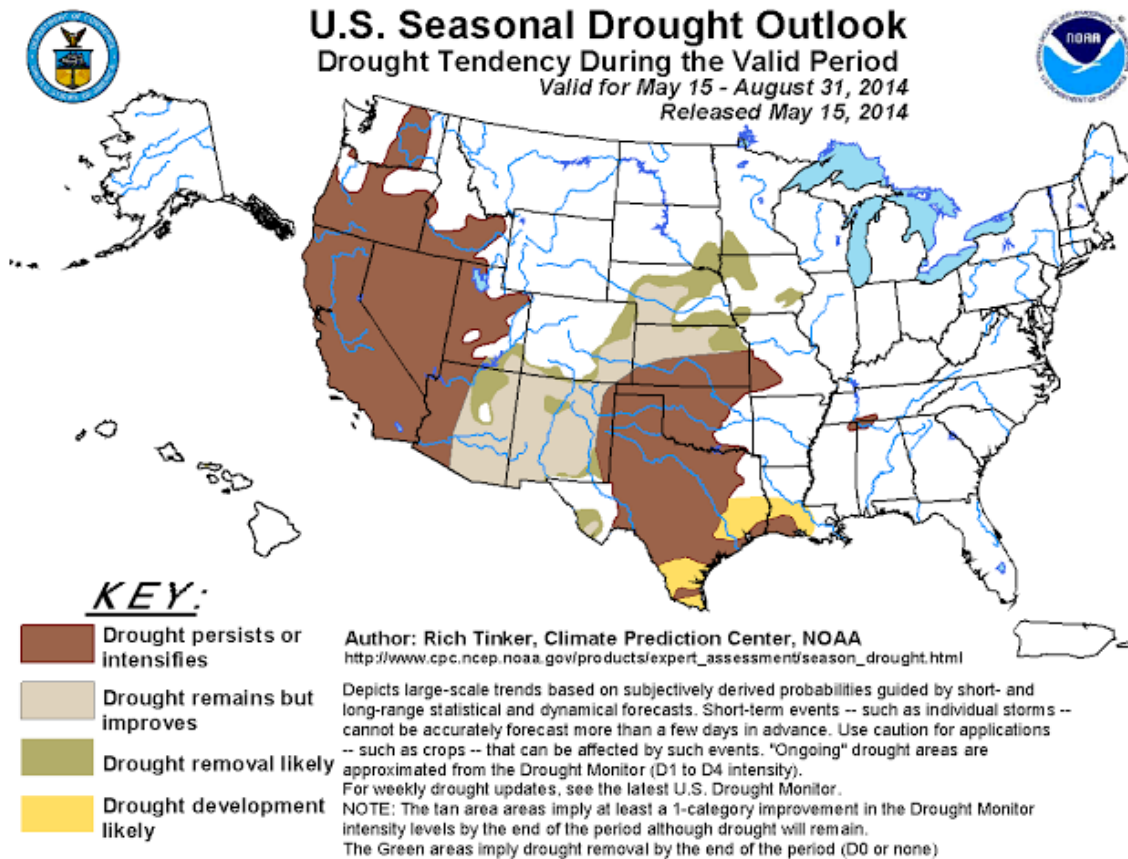


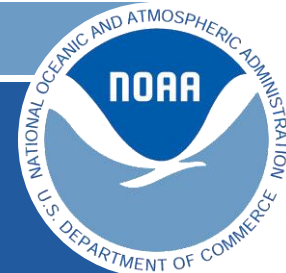


JJA Seasonal Drought Outlook

CPC drought outlooks incorporate considerable monitoring and prediction information:

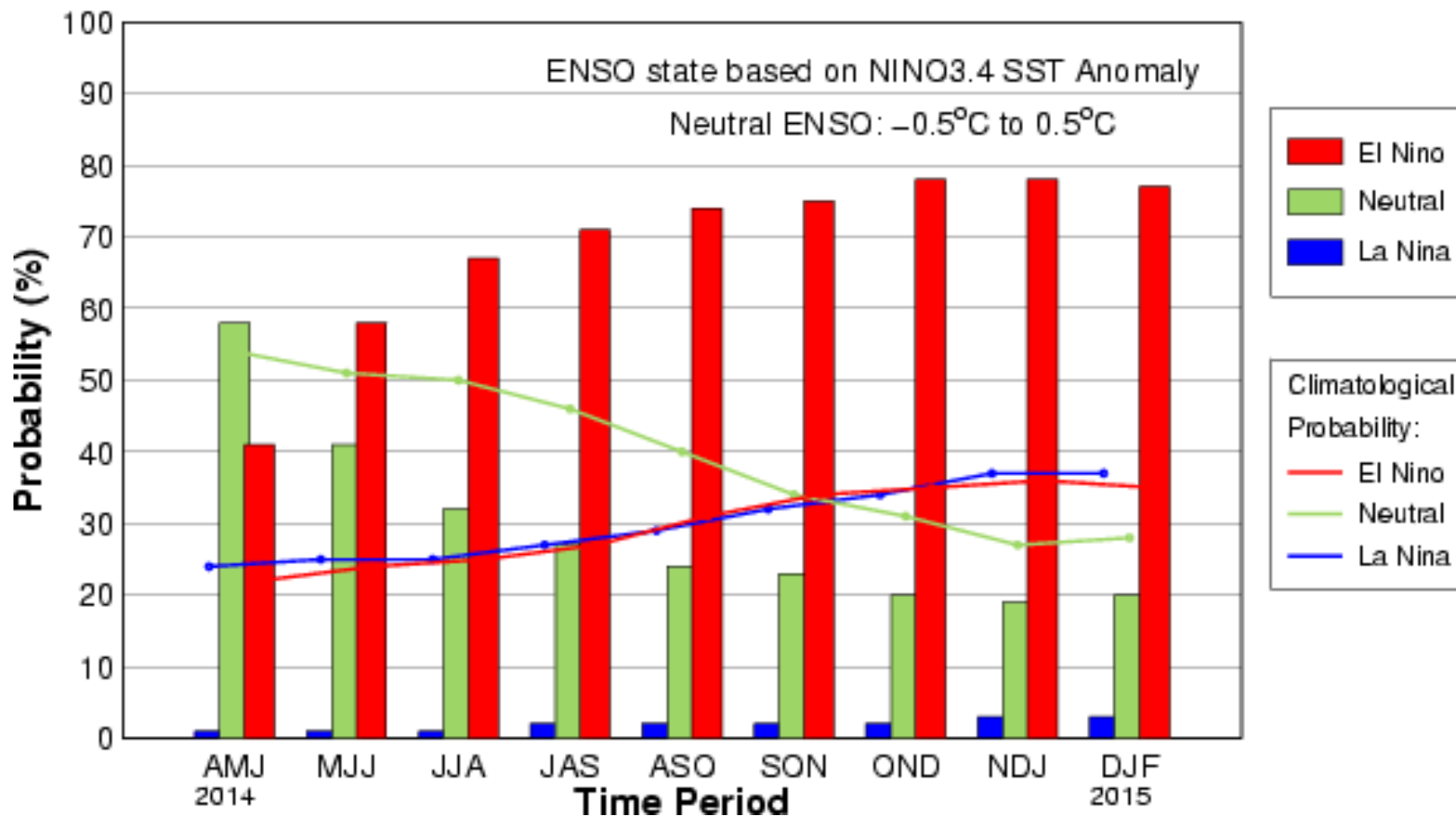
- Multiple length precipitation totals
- Latest soil moisture, snow cover
- Short-, medium- and extended range model guidance
- Latest CPC monthly/seasonal outlooks
- Monthly and seasonal model guidance of precipitation

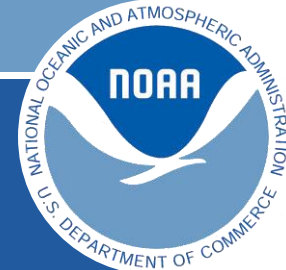




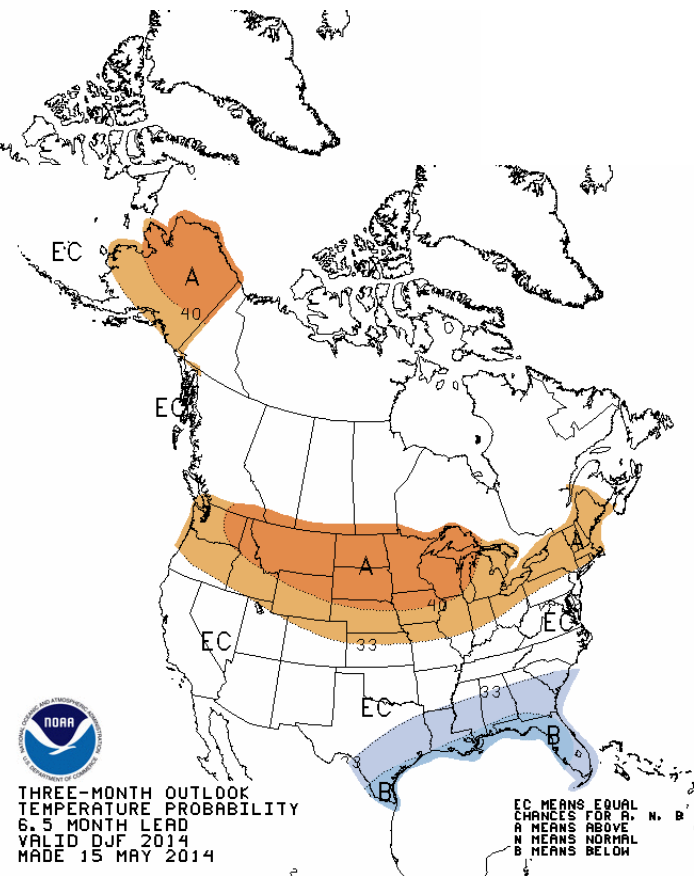
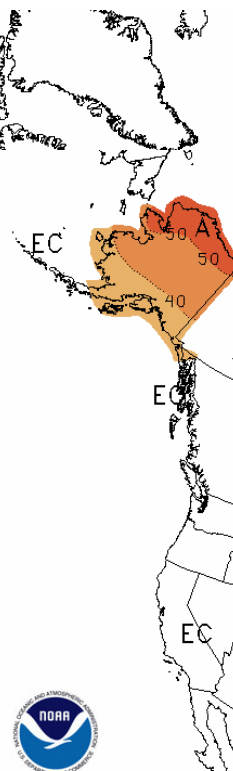
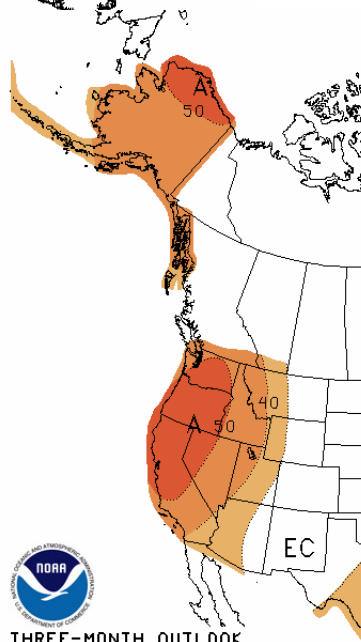
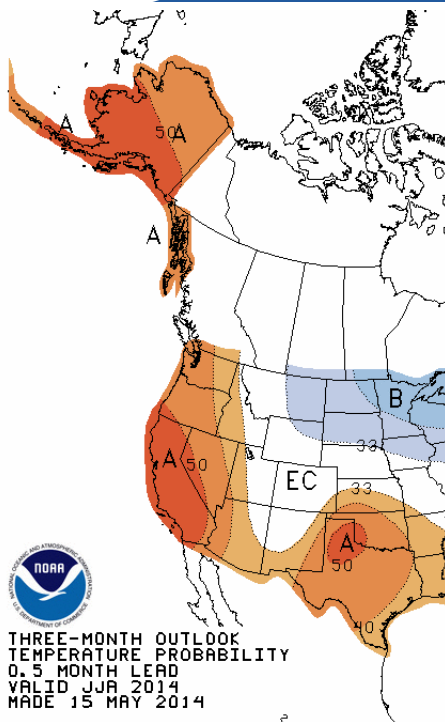
The next 8 months ... ENSO

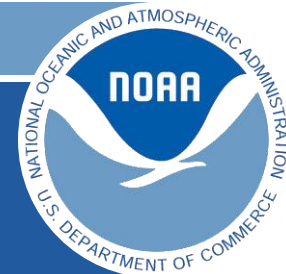
Early-May CPC/IRI Consensus Probabilistic ENSO Forecast



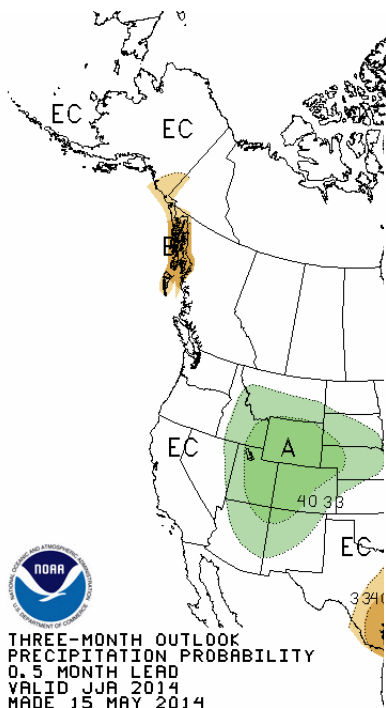


The next 8 months ... T Outlook

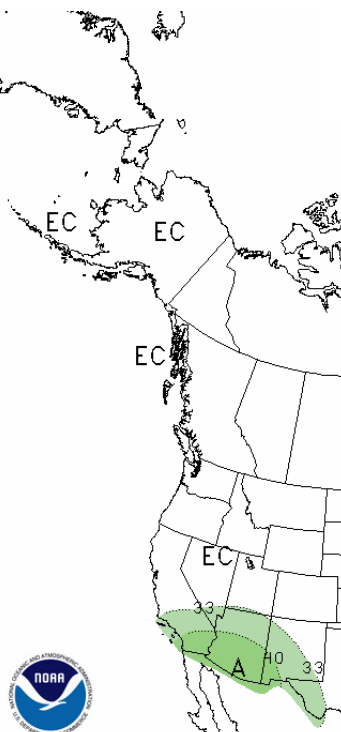




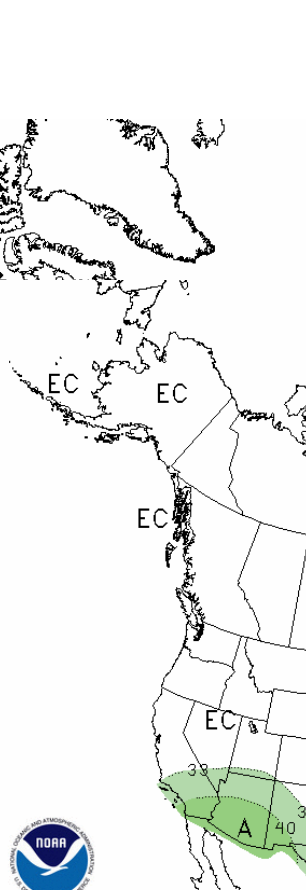
The next 8 months ... P Outlook



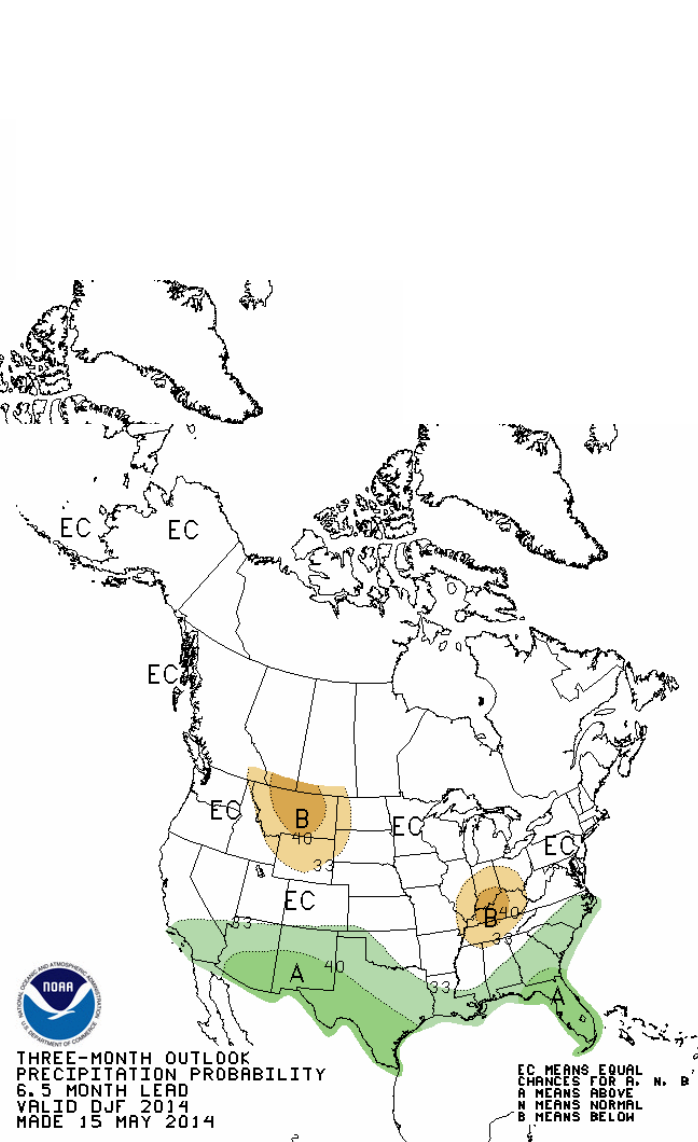
THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID JJA 2014
MADE 15 MAY 2014



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
2.5 MONTH LEAD
VALID ASO 2014
MADE 15 MAY 2014

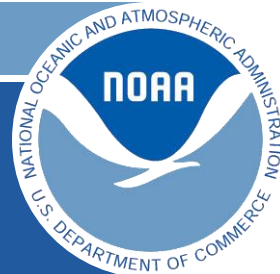


THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
4.5 MONTH LEAD
VALID OND 2014
MADE 15 MAY 2014



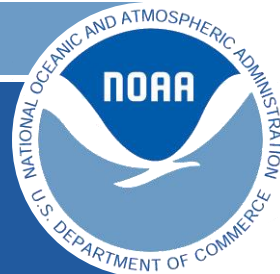
THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
6.5 MONTH LEAD
VALID DJF 2014
MADE 15 MAY 2014

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW



Summary

- CPC has a number of operational outlooks that can be utilized to aid with drought situational awareness (Week-2 out to seasonal)
- The outlook for California for the upcoming JJA period favors above-average temperatures for the entire state.
- El Nino is favored to develop during the summer and continue into the winter 2014-2015.
- Elevated odds for above average temperatures persist into the autumn for all of California, while above average precipitation is favored for the southern 1/3 of the state beginning in Aug-Sep-Oct into the winter months.

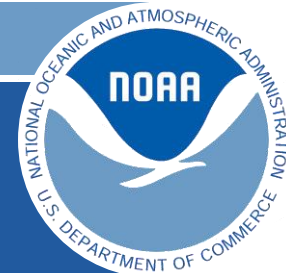


Questions / Suggestions

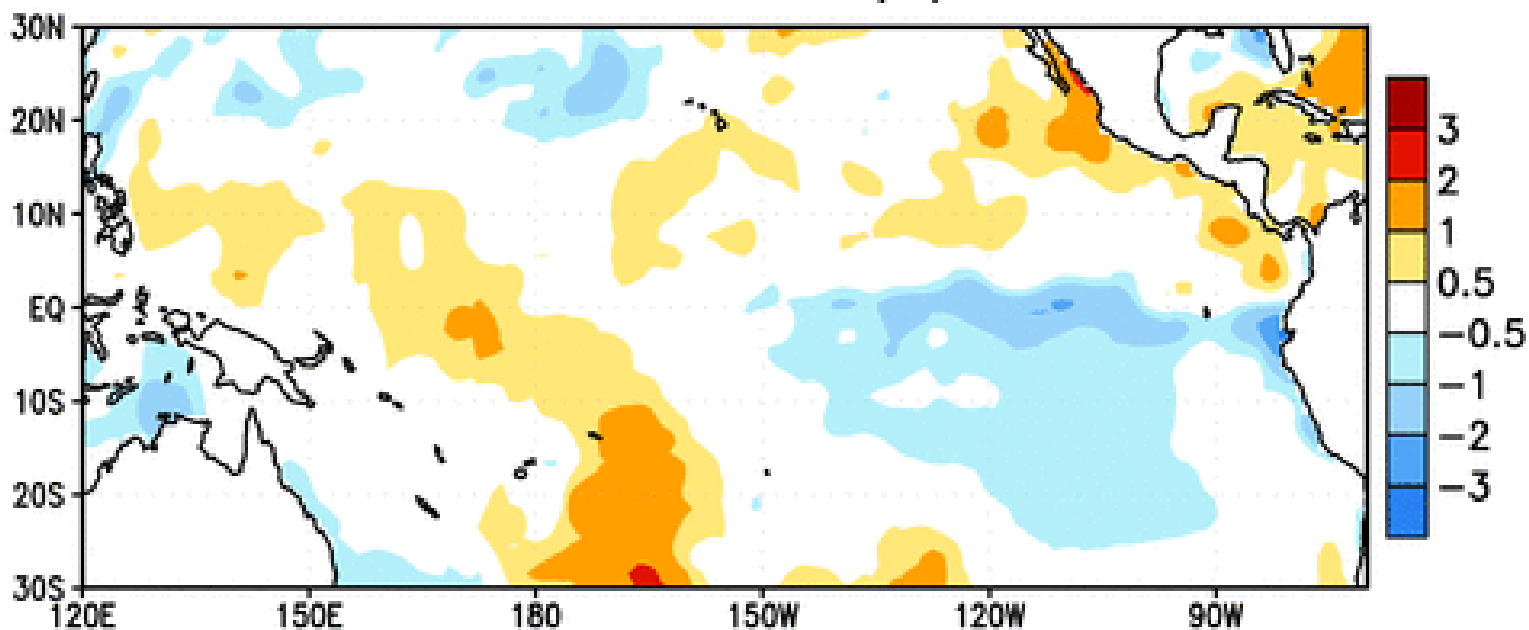
Thank you for your time and attention

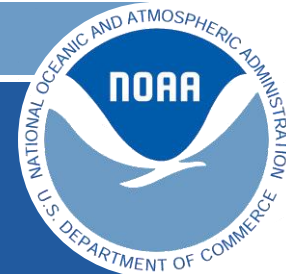
Feel free to contact me anytime via e-mail if you have questions on the CPC forecast operations

Jon.Gottschalck@noaa.gov



Week centered on 19 FEB 2014
SST Anomalies ($^{\circ}\text{C}$)





Equatorial Temperature Anomaly ($^{\circ}\text{C}$)

Pentad centered on 09 MAR 2014

